Explanatory note to the CSG to accompany maps of contaminant loads

Prepared by the TLG

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The contaminant load data already provided to the CSG has been mapped to allow spatial assessment of the sub-catchment loads and, as requested by the CSG sub-group, the load to be removed at 25% of Scenario 1, for each of nitrogen, phosphorus, *E.coli* and sediment. In addition, the spreadsheet has been updated to calculate load per productive ha excluding forestry, and a combined ranking has been mapped.

Mapping of sub-catchment loads

There are four maps for each contaminant. All maps use constrained land use data.

1. Baseline load per sub-catchment, being the current state load in tonnes (sediment, N, P) or numbers of *E.coli* entering water from each sub-catchment
2. Baseline load per sub-catchment total area, being the current state sub-catchment load expressed in kg or number of *E.coli* per ha
3. Load to be removed from each sub-catchment at 25% of Scenario 1, being the load that needs to be removed from each sub-catchment to achieve 25% of the reduction in concentration in the water required for Scenario 1, in tonnes or numbers of *E.coli* entering water from each sub-catchment
4. Load to be removed per sub-catchment at 25% of Scenario 1 per productive area, being the load that needs to be removed from each sub-catchment to achieve 25% of the reduction in concentration required for Scenario 1 expressed in kg or number of *E.coli* per productive ha. Productive ha is the sum of the ha in pasture, horticulture and forestry.

On each map, the 74 sub-catchments are grouped and coloured to rank them from highest to lowest. The groupings are based on the values for the top 10% (7 sub-catchments), next 10% (7 sub-catchments), then in 20% groupings (each of 15 sub-catchments).

The map legends provide the ranges in values across the sub-catchments being grouped. For example, the Baseline P load from the lowest 15 sub-catchments ranges from 0.19 to 2.86 tonnes per sub-catchment and from the highest 7 sub-catchments from 37.21 to 77.31 tonnes.

Combined ranking of sub-catchment loads

Additional maps are provided based on a combined ranking. The combined rankings are calculated in the spreadsheet 'Ranking contaminants'. For each of the four loads mapped above, the value for each sub-catchment is shown with its ranking from 1 to 74 (1=lowest, 74=highest). The four contaminant ranks were added together to give a combined ranking score for each load, and the combined scores ranked from the lowest to the highest. No weighting was applied to contaminants in calculating the combined score.

The rank for each contaminant and the combined ranks are coloured in groups as used above i.e. the highest 10% combined scores to the lowest 20% combined scores and then mapped.

The combined ranking spreadsheets allow visual scanning of rankings across all contaminants, showing, for example, whether the combined score reflects a similar ranking across all contaminants or whether ranks are high for one contaminant but not for the others.

Exclusion of forestry

The contaminant load data already provided has been updated ('Load data for CSG incl minus forestry') to show the sediment load to be removed expressed per kg productive ha

minus forestry. The load to be removed from each sub-catchment at 25% of Scenario 1 expressed per ha of productive land minus forestry is mapped for each contaminant (four maps in total).